LLNL engineer elected IEEE fellow

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Grace Clark

LLNL electrical engineer Grace Clark (NSED) has been elevated to the grade of fellow by the Institute of Electrical and Electronics Engineers (IEEE) in recognition of her pioneering contributions in block adaptive filtering.

Fellow status is conferred by IEEE's Board of Directors upon IEEE members with an extraordinary record of accomplishments in any of the IEEE fields of interest. The nomination process requires statements from one nominator plus five to eight IEEE fellow grade references plus anywhere from one to three endorsers (not necessarily fellows). Eleven people supported Clark's nomination. The total number of fellows selected in any one year does not exceed one-tenth of 1 percent of the worldwide IEEE voting membership. Clark is one of 268 fellows selected this year, out of a total worldwide membership of more than 365,000 in 150 countries.

In the 1980s, Clark's publications created the fundamental theory of block adaptive filtering and spawned a fruitful new research area that has led to hundreds of papers extending the original work. This remains an active research area today, and at least 10 textbooks include chapters or sections dedicated to block adaptive filtering.

The block adaptive filter is used extensively in a wide variety of applications, including ground-based and satellite communication systems (channel equalization, echo canceling, multi-path suppression, etc.), array processing and target recognition (adaptive line enhancement, SNR improvement, radar, anti-submarine warfare, etc.). Companies that have developed block adaptive filtering products include Motorola, Applied Signal Technology (AST), Argo Systems, ESL, Texas Instruments, Adaptive Digital Systems Inc. and DSP Creations Ltd.

Before coming to LLNL, Clark worked at the Caltech Jet Propulsion Laboratory. She came to the Laboratory in 1974 with bachelor's and master's degrees in electrical engineering from the Purdue University Electrical Engineering Honors Program. LLNL supported her Ph.D. dissertation research through UC Santa Barbara. Clark now works in the areas of signal/image processing, estimation/detection, and statistical pattern recognition applied to acoustics, electromagnetics and particle physics. She has held the positions of principal investigator, technology leader, program leader and engineering thrust area leader for remote sensing, imaging and signal engineering.

Commenting on her election, Clark said: "I am very grateful to LLNL for supporting my Ph.D. research, and I am delighted that the work I loved doing has had a positive impact upon the engineering world."

Clark has served on the technical/thesis committees of three MS and two Ph.D. students at UC Davis. She has contributed more than 150 technical publications and teaches a course at LLNL on digital signal and image processing. She is a member of the Acoustical Society of America, the Society of Exploration Geophysicists, Sigma Xi and Eta Kappa Nu. She also serves as a reviewer for a variety of technical journals.